

REMARKS

As to the 35 U.S.C. §112, Second Paragraph Rejection

Claims 1-4 and 6-42 were rejected under 35 U.S.C. §112, second paragraph. This rejection will be addressed below in the order in which the rejection appears in the April 16, 2007 Office Action.

Firstly

The word "about" has been deleted from the range for the polyisocyanate compound of claim 1.

Secondly

The unclear wording for the co-chain extender in claims 1 and 35 has been replaced with a Markush group of possible co-chain extenders. The basis for the co-chain extender Markush group can be found in original filed claim 2.

Thirdly

The symmetrical chain extender component in claims 1 and 35 has been amended to recite a Markush group of specific compounds. The basis for the Markush group can be found in original filed claim 3.

Fourthly

The chain extenders components (symmetrical and asymmetric) have been amended to recite specific compounds in claims 1 and 35.

Fifthly

Claims 1, 3, 9 and 35 have been amended to recite that the ratio is the molar percent of the co-chain extender to the symmetrical chain extender, to the weight percent of the co-polyol to the combined weight of the polyester polyol and the polyether polyol. The basis for using "%" in place of "ratio" can be found in the heading of Table 1, which shows the column "co-chain extender (mole %)".

Lastly

The broader ratio of claim 7 has been deleted. Claim 8 has been cancelled.

The amended claims are now believed to comply with 35 U.S.C. §112, second paragraph, and the Examiner is respectfully requested to remove this rejection.

Claim 4 was amended to the more preferred molecular weight of the polyether co-polyol. The basis for this amendment can be found in Paragraph (0019) of the specification.

As to the 35 U.S.C. §112, First Paragraph Rejection

Claims 1-4 and 6-42 were rejected under 35 U.S.C. §112, first paragraph, in Paragraphs 3 and 4 of the April 16, 2007 Office Action. The rejection in Paragraphs 3 and 4 has been traversed by the amendment to the claims where the ratio is expressed as the molar percent of the co-chain extender to the symmetrical chain extender to the weight percent of the co-polyol to the combined weight of the polyester polyol and polyether co-polyol.

The symmetric chain extenders and the co-chain extenders have been amended to recite specific compounds.

One skilled in the art would have no problem determining the mole % of the co-chain extender used. One would determine the number of moles of each used and divide them. Also, one skilled in the art could easily determine the wt.% of the co-polyol used. The ratio of the mole % of co-chain extender to wt.% of co-polyol could also be easily determined.

It is believed the amended claims now comply with 35 U.S.C. §112, first paragraph, and the Examiner is respectfully requested to remove this rejection.

The claims were commonly owned at the time the invention was made. The inventors are both long term employees of the Assignee (Lubrizol Advanced Materials, Inc.).

Claims 1-4, 6, 11-18, 23-26 and 31-42 were rejected under 35 U.S.C. §102(b) as being anticipated by Ehrlich et al. ('904). This rejection is respectfully traversed by the amended

claims. The claims have been amended to recite poly(tetramethylene glycol) as the polyether co-polyol. This co-polyol is not disclosed in Ehrlich et al. The Examiner is respectfully requested to reconsider and remove this objection.

Claims 7-10, 19-22 and 27-30 were rejected under 35 U.S.C. §103(a) as being obvious over Ehrlich et al. ('904) in view of Van Der Wal et al. ('445) and Mao ('572). This rejection is respectfully traversed by the amended claims and the arguments below.

The objective of this invention is to have a thermoplastic polyurethane which has desirable properties such as slow annealing, low sensitivity of complex viscosity to changes in shear rates, reduced crystallinity, and good hydrolytic resistance. This combination of desirable properties has been unexpectedly accomplished by making a TPU with mixed polyols (polyester polyol and a polyether co-polyol) and mixed chain extenders (one which is symmetrical) and one which is different from the symmetrical chain extender. The result is a TPU which can be calendered onto fabrics at high rates of speed and performs well for hydrolytic stability. Such products find use in several applications such as conveyor belts and various fabric coatings.

The reference Ehrlich et al. ('904) does not teach using poly(tetramethylene ether glycol) as a polyol. The reference Van Der Wal et al. ('445) teaches a blend of a polyester polyol and a polyether polyol, which poly(tetramethylene ether glycol) is mentioned as a possible polyether polyol. Van Der Wal et al. does not teach that it is necessary to use a mixture of chain extenders, one of which is symmetrical.

The reference Mao ('572) teaches a TPU made with a mixture of a polyester polyol and a polyether glycol and teaches applications such as coated fabrics and molding applications. Mao does not teach a blend of chain extenders as recited in the claims of Applicants' invention.

The three references taken together do not suggest to one skilled in the art that a blend of polyester and polyether polyols as well as a blend of chain extenders in the specific ratios taught by Applicants would be necessary to achieve the unexpected properties in a TPU. The amended

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claims are unobvious over the combined teachings of Ehrlich et al., Van Der Wal et al. and Mao.
The Examiner is requested to reconsider and allow the amended claims.

Respectfully submitted,

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